

Two New Species of *Hybos* Meigen from Oriental China (Diptera, Empidoidea, Hybotidae)

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Two New Species of *Hybos* Meigen from Oriental China (Diptera, Empidoidea, Hybotidae). - The following two closely related species of the genus *Hybos* from Oriental China are described as new to science: *Hybos biancistroides* sp. n. and *Hybos yinyuhensis* sp. n. Their relationships with the morphologically similar species are discussed.

Keywords: Diptera - Hybotidae - *Hybos* - China - Hubei - new species

INTRODUCTION

The genus *Hybos* Meigen is characterized within the family Hybotidae by the long spine-like proboscis, anal cell longer than basal cell, R_{4+5} and M_1 divergent apically (Chvála, 1983; Yang & Yang, 2004). It is distributed worldwide with 164 species, of which 12 species described from the Palaearctic Region and 130 species from the Oriental Region (Yang *et al.*, 2007). The species of *Hybos* from China were revised by Yang & Yang (2004) who mentioned 85 species. Since then, another 15 species were described, and therefore, 100 species are currently known from China (Yang *et al.*, 2007). The major references dealing with *Hybos* in the Old World are Brunetti (1920), Frey (1953), Smith (1965), Saigusa (1963, 1965), Chvála (1983), Yang & Yang (2004), and Yang *et al.* (2006). In the present paper, two new species of *Hybos* are added to the fauna of Oriental China, supplementing Yang & Yang (2004).

MATERIAL AND METHODS

The specimens for this study are deposited in the following collections:

CAU = Entomological Museum of China Agricultural University, Beijing, China.

MHNG = Muséum d'histoire naturelle, Genève, Switzerland.

Basic terminology follows McAlpine (1981) and Steyskal & Knutson (1981). The following abbreviations for the setae are used: *acr* = acrostichal, *ad* = anterodorsal, *av* = anteroventral, *dc* = dorsocentral, *h* = humeral, *npl* = notopleural, *oc* = ocellar, *presc* = prescutellar, *psa* = postalar, *pv* = posteroventral, *v* = ventral.

TAXONOMIC PART

Hybos biancistroides sp. n.

Fig. 1

HOLOTYPE: Male, Hubei, Shennongjia, Yinyuhe, 18. VII. 2009, Qifei Liu (CAU).

PARATYPES: 4 males, same data as holotype (CAU & MHNG).

ETYMOLOGY: The specific name refers to two hook-like processes of the left surstylus.

DIAGNOSIS: Legs entirely black. Mid femur with one row of long, uniformly light brown *pv* setulae. Right surstylus thick and apically hooked medially; left surstylus with two medially directed hook-like processes, a short basal and apically a very long, medially directed one.

DESCRIPTION MALE: Body length 3.2-3.3 mm, wing length 3.2-3.3 mm.

Head: black, pale gray microtrichose. Eyes contiguous on frons; upper facets distinctly enlarged. Setae and setulae on head black; ocellar tubercle distinct, with one pair of long *oc*. Antenna black; scape bare; pedicel with a circle of subapical setulae; first flagellomere without dorsal setulae, 1.6-1.7 times as long as wide; arista black, 3.6-3.7 times as long as first flagellomere, short pubescent (longest rays shorter than basal diameter of arista) except apical 1/4 thin and bare. Proboscis black; palpus black with 3-4 long ventral setulae.

Thorax: black, pale gray microtrichose. Setae and setulae black; postpronotal lobe setulose but true *h* absent, 2 *npl* (anterior *npl* short), *acr* irregularly biseriate, 1 distinct posterior *dc* and 5-6 setulae anteriorad, 1 weak *presc*, 1 long *psa*; scutellum with 2 (pairs of) short lateral setulae, 1-2 (pairs of) short apical setulae and 1 (pair of) long subapical setae. Legs entirely black. Setulae on legs light brown, setae black, except tibiae and tarsi with mostly black setulae. Fore femur 1.2 times as wide as mid femur, with one row of long *pv* setulae; mid femur with 1 preapical anterior seta and with one row of long *pv* setulae; hind femur 2.0-2.1 times as wide as mid femur, with 3-4 *ad* setae in apical half, and with 7-8 *av* (longer than *v* and *pv*), 14 *v* (6 sparse *v* on basal 1/2 and 8 dense *v* on apical 1/2), a short row of 3-5 *pv* on basal 1/4, which are spine-like and inserted on weak tubercles. Fore tibia with 1 long *ad* at middle, apically with 1 *ad* and 1 *av*; mid tibia with 3 long *ad* in one row, apically with 4 setae (1 *av* very long); hind tibia apically with 1 brownish yellow *av* and 1 long, thin preapical *ad*. Mid tarsomere 1 with two rows of short *v*; hind tarsomeres 1-2 with short ventral spines. Wing hyaline or indistinctly grayish tinged; stigma dark brown; veins dark brown, *R*₄₊₅ and *M*₁ slightly divergent apically. Squama yellow, bordered with pale setulae. Halter pale yellow with dark brown base.

Abdomen: weakly curved downward, blackish, grey microtrichose. Setulae and setae pale, but few setae on hypopygium black.

Male genitalia (Fig. 1): right epandrial lobe wide with slightly concave inner margin at middle, right surstylus thick, its tip with a medially directed hook-like process; left epandrial lobe narrow with slightly convex inner margin, left surstylus long with a short basal and a long apical hook-like process, both medially directed; hypandrium distinctly longer than wide, apically distinctly narrowed toward extreme tip.

FEMALE: Unknown.

DISTRIBUTION: China (Hubei).

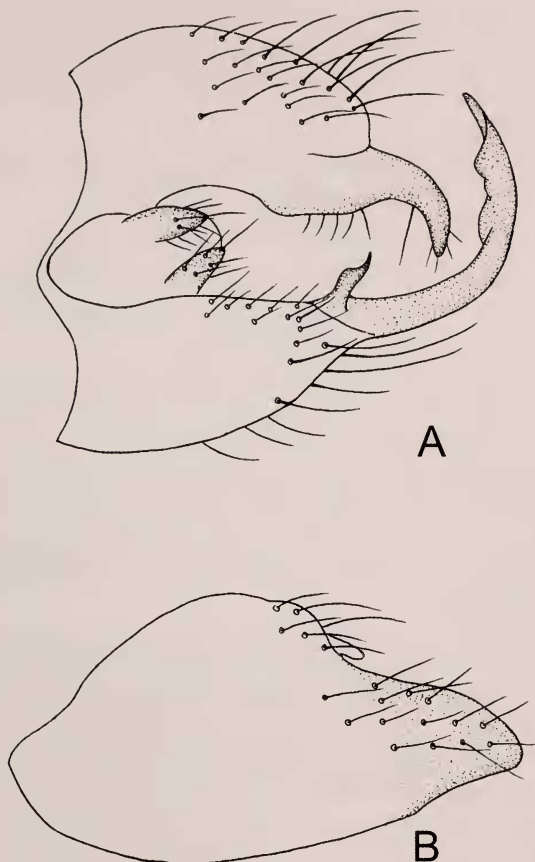


FIG. 1

Hybos biancistroides sp. n. (male). (A) Genitalia, dorsal view. (B) Hypandrium, ventral view.

REMARKS: In the key of Yang & Yang (2004) this species runs to couplet 52 which has to be modified as follows:

52. Wing hyaline or indistinctly grayish tinged 52a
 Wing grayish *H. jianfengensis*
 52a. First flagellomere with several dorsal setae; arista entirely bare
 *H. tongshanensis*
 First flagellomere without any dorsal seta; base of arista pubescent
 *H. biancistroides* sp. n.

The new species may be confused with *Hybos tongshanensis* Yang & Yang, 1991 from Hubei and Guangxi, but it can be easily separated from the latter by having the first flagellomere without any dorsal seta and the base of the arista pubescent. In *H. tongshanensis*, the first flagellomere has several dorsal setae, and the arista is entirely

bare (Yang & Yang, 2004). Another morphologically similar species is *H. yinyuhensis* sp. n. (see below). The differences between the two species are given under this species.

***Hybos yinyuhensis* sp. n.**

Fig. 2

HOLOTYPE: Male, Hubei, Shennongjia, Yinyuhe, 18. VII. 2009, Qifei Liu (CAU).

PARATYPES: 3 males, same data as holotype (CAU & MHNG).

ETYMOLOGY: The specific name refers to the type locality.

DIAGNOSIS: Legs entirely black. In the middle of the row of the light brown *pv* setae on mid femur with 3-4 black setae. Right surstylus, straight, short and wide. Otherwise morphologically similar to *H. biancistroides* sp. n.

DESCRIPTION MALE: Body length 3.4-3.5 mm, wing length 3.5-3.6 mm.

Head: black, pale gray microtrichose. Eyes contiguous on frons; upper facets distinctly enlarged. Setae and setulae on head black; ocellar tubercle distinct, with one pair of long oc. Antenna black; scape bare; pedicel with a circle of subapical setulae; first flagellomere without dorsal setulae, 1.5-1.6 times as long as wide; arista black, 4.4-4.5 times as long as first flagellomere, short pubescent (longest rays shorter than basal diameter of arista) except apical 1/4 thin and bare. Proboscis black; palpus black with 3-4 long ventral setulae.

Thorax: black, pale gray microtrichose. Setae and setulae black; postpronotal lobe setulose but true *h* absent, 2 *npl* (anterior *npl* short), *acr* irregularly biseriate, 1 distinct posterior *dc* and 6-7 setulae anteriorly, 1 distinct *presc* (slightly shorter than posterior *dc*), 1 long *psa*; scutellum with 2 (pairs of) short lateral setulae, 2 (pairs of) short apical setulae and 1 pair of long subapical setae. Legs entirely black. Setulae on legs mostly pale, setae black. Fore femur 1.2 times as wide as mid femur, with one row of pale, long *pv* setulae; mid femur with 1 preapical anterior seta and with one row of pale, long *pv* setulae (but 3-4 *pv* setulae at middle black and strong); hind femur 2.3-2.7 times as wide as mid femur, with 3-4 *ad* in apical half, and with 9-10 *av* (mostly longer than *v* and *pv*), 14 *v* (7 sparse *v* on basal 1/2 and 7 dense *v* on apical 1/2), 5 *pv* on basal 1/4, which are spine-like and inserted on weak tubercles. Fore tibia with 4-5 almost dorsal setae (1 seta near middle conspicuously long), apically with 1 *ad* and 1 very long, weak *pv*; mid tibia with 3 *ad* (2 basal *ad* very long), apically with 4 setae (1 *av* very long); hind tibia apically without distinct strong setae. Mid tarsomere 1 with two rows of short *v*; hind tarsomeres 1-2 with short ventral spines. Wing hyaline; stigma dark brown; veins dark brown, R_{4+5} and M_1 indistinctly divergent apically. Squama yellow, bordered with pale setulae. Halter pale yellow with dark brown base.

Abdomen: weakly curved downward, black, gray microtrichose. Setulae and setae pale except for some black setae on hypopygium.

Male genitalia (Fig. 2): right epandrial lobe with slightly concave inner margin at middle, right surstylus straight, short and wide with a small, shining black wart-like tubercle just below; left epandrial lobe with slightly concave inner margin, left surstylus with a short, basal and a long, apical process (long process almost straight, wide and knife-like); hypandrium distinctly longer than wide, apically narrowed toward its tip.

FEMALE: Unknown.

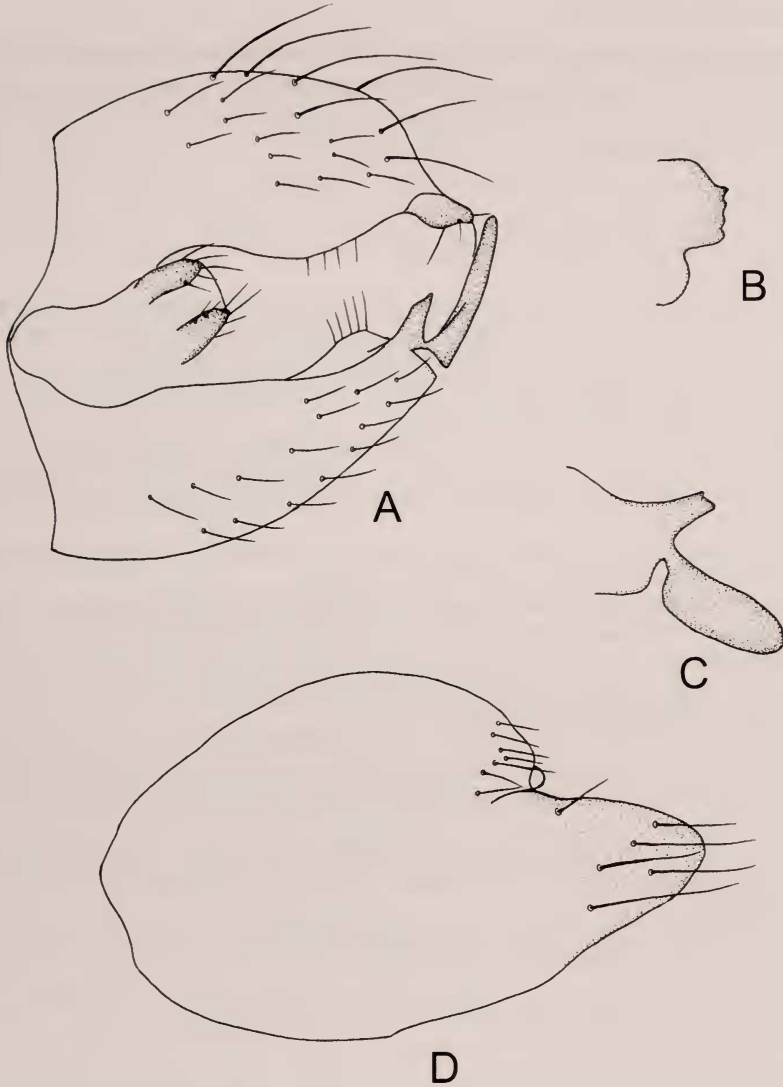


FIG. 2

Hybos yinyuhensis sp. n. (male). (A) Genitalia, dorsal view. (B) Right surstylus. (C) Left surstylus. (D) Hypandrium, ventral view.

DISTRIBUTION: China (Hubei).

REMARKS: The new species is morphologically similar to *Hybos biancistroides* sp. n., and runs to the same couplet in the key of Yang & Yang (2004), but it can be separated from the latter by 3-4 medially black pv setae on mid femur (all light brown in *H. biancistroides*), and its right surstylus which is straight, short and wide (thick and apically with a hook in *H. biancistroides*).

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